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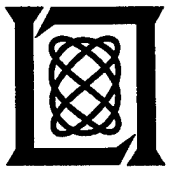

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FOREWORD

Volume 24 of Unclassified Publications of Lincoln Laboratory lists reports published from 1 January to 31 December 1998, as well as updated information on earlier publications.

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TABLE OF CONTENTS

Foreword iii
Acknowledgments vii
Lincoln Laboratory Journal 1
Quarterly Technical Reports 1
Miscellaneous Progress Reports 3
Technical Reports 5
Journal Articles 7
Meeting Speeches 17
Author Index 35
Subject Index 41

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LINCOLN LABORATORY JOURNAL

Fall 1997	Vol. 10, No. 2
1998	Vol. 11, No. 1

QUARTERLY TECHNICAL REPORTS

SOLID STATE RESEARCH

	DTIC No.
1997:4	ADA342325
1998:1	ADA347651
1998:2	ADA355512
1998:3	ADA360556

MISCELLANEOUS PROGRESS REPORTS

UNCLASSIFIED PUBLICATIONS OF LINCOLN LABORATORY
(Previous Volumes)

	DTIC No.
15 September 1966	AD803845
15 September 1969	AD863031
15 September 1971	AD734038
15 December 1973	AD778085
15 December 1975	ADA028523
15 December 1977	ADA062413
15 December 1979	ADA101092
15 December 1981	ADA129036
15 December 1983	ADA144354
31 December 1984	ADA161752
31 December 1985	ADA167987
31 December 1986	ADA187252
31 December 1987	ADA204729
31 December 1988	ADA212589
31 December 1989	ADA228219
31 December 1990	ADA236798
31 December 1991	ADA252852
31 December 1992	ADA265156
31 December 1993	ADA280530
31 December 1994	ADA306272
31 December 1995	ADA315140
31 December 1996	ADA326552
31 December 1997	ADA346370

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TR No.				DTIC No.
1039	A Forward Error Control Scheme for GBS and BADD	Schein, B.E. Bernstein, S.L.	22 July 1997	ADA327920
1044	Use of the Auction Algorithm for Target Object Mapping	Rink, K.A O'Connor, D.A.	9 Feb. 1998	ADA338143
1045	A Case Study of Debris Characterization by Remote Sensing	Sridharan, R. Beavers, W.I. Gaposchkin, E.M. Lambour, R.L. Kansky, J.E.	18 Dec. 1998	ADA359035
1046	Passive Localization of Moving Emitters Using Out-of-Plane Multipath	Coutts, S.D.	30 Sep. 1998	ADA354324
1049	Radar Determination of Turbulence Exceedance Probability	Snow, J.W. Burke, H.K. Peduzzi, D.C. Upham, C.A. Jordan, M.P.	25 Sep. 1998	ADA354047

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JA No.			
7236	All-Optical Network Consortium - Ultrafast TDM Networks	Barry, R.A. Chan, V.W.S. Hall, K.L. Kintzer, E.S. Moores, J.D. Rauschenbach, K.A. Swanson, E.A. Adams, L.E. Doerr, C.R. Finn, S.G. Haus, H.A. Ippen, E.P. Wong, W.S. Haner, M.	IEEE J. Sel. Areas Commun., Vol. 14, No. 5, June 1996, pp. 999-1013.
7360	Diffraction-Limited 1.3-μm-Wavelength Tapered-Gain-Region Lasers with >1-W CW Output Power	Walpole, J.N. Donnelly, J.P. Groves, S.H. Missaggia, L.J. Woodhouse, J.D. Bailey, R.J. Napoleone, A.	IEEE Photonics Technol. Lett., Vol. 8, No. 11, November 1996, pp. 1429-1431. ADA337671
7418	Enhanced Imagery Using Spectral-Estimation-Based Techniques	Moore, T.G. Zuerndorfer, B.W. Burt, E.C. II	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 171-186.
7425	Microwave Photonic Links with Very Low (≈3 dB) Amplifierless Noise Figure	Cox, C.H. III Ackerman, E.I. Betts, G.E.	Chapter in *Directions for the Next Generation of MMIC Devices and Systems,* Plenum Press, 1997, pp. 245-253.
7426	Diamond Grit-Based Field Emission Cathodes	Geis, M.W. Twichell, J.C. Efremow, N.E., Jr. Krohn, K.E. Stern, M.B. Lyszczarz, T.M.	IEEE Electron Device Lett., Vol. 18, No. 12, December 1997, pp. 595-598.

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JA No.

7427	Binary Integration for Swerling Target Fluctuations	Shnidman, D.A.	IEEE Trans. Aerosp. Electron. Syst., Vol. 34, No. 3, July1998, pp. 1043-1053.
7436	High-Performance Low-Complexity Wordspotting Using Neural Networks	Chang, E.I. Lippmann, R.P.	IEEE Trans. Signal Process., Vol. 45, No. 11, November 1997, pp. 2864-2870. ADA337674
7442	Airborne Signal Intercept for Wide-Area Battlefield Surveillance	Horowitz, L.L.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 87-98.
7443	Utilizing Waveform Features for Adaptive Beamforming and Direction Finding with Narrowband Signals	Forsythe, K.W.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 99-126.
7446	Linear and Nonlinear Microwave Dynamics of Vortices in $YBa_2Cu_3O_7$-Δ Thin Films	Belk, N. Oates, D.E. Feld, D.A. Dresselhaus, G.F. Dresselhaus, M.S.	Phys. Rev. B, Condens. Matter, Vol. 56, No. 18, 1 November 1997, pp. 11,966-11,978.
7452	The Automatic Target-Recognition System in SAIP	Novak, L.M. Owirka, G.J. Brower, W.S. Weaver, A.L.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 187-202.
7455	Screening of Excitons in GaN Crystals	Reynolds, D.C. Look, D.C. Jogai, B. Molnar, R.J.	J. Phys., Condens. Matter., Vol. 10, No. 25, 1998, pp. 5577-5581.
7460	Measurements of L-Band Inland-Water Surface-Clutter Doppler Spectra	Billingsley, J.B.	IEEE Trans. Aerosp. Electron. Syst., Vol. 34, No. 2, April 1998, pp. 378-390. ADA351445

JA No.			
7461	All-Optical Buffering of 40-Gb/s Data Packets	Hall, K.L. Rauschenbach, K.A.	IEEE Photonics Technol. Lett., Vol. 10, No. 3, March 1998, pp. 442-444. ADA340337
7463	How Narrow is Narrowband?	Zatman, M.A.	IEE Proc. Radar Sonar Navig., Vol. 145, No. 2, April 1998, pp. 85-91.
7465	Laser-Fabricated Glass Microlens Arrays	Fritze, M. Stern, M.B. Wyatt, P.W.	Opt. Lett., Vol. 23, No. 2, 15 January 1998, pp. 141-143.
7468A	Improved Localization of Energy Deposition in Adaptive Phased-Array Hyperthermia Treatment of Cancer	Fenn, A.J. Sathiaseelan, V. King, G.A. Stauffer, P.R.	J. Oncol. Manag., Vol. 9, No. 2, March/April 1998, pp. 22-29.
7469	A New Surface Electron-Emission Mechanism in Diamond Cathodes	Geis, M.W. Efremow, N.E., Jr. Krohn, K.E. Twichell, J.C. Lyszczarz, T.M. Kalish, R. Greer, J.A. Tabat, M.D.	Nature, Vol. 393, No. 6684, 4 June 1998, pp. 431-435. ADA351662
7469A	Theory and Experimental Results of a New Diamond Surface-Emission Cathode	Geis, M.W. Efremow, N.E., Jr. Krohn, K.E. Twichell, J.C. Lyszczarz, T.M. Kalish, R. Greer, J.A. Tabat, M.D.	Linc. Lab. J., Vol. 10, No. 1, 1997, pp. 3-18.
7474	Ultra-Wideband Coherent Processing	Cuomo, K.M. Piou, J.E. Mayhan, J.T.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 203-222.

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JA No.

7478	Superresolution Source Location with Planar Arrays	Hatke, G.F.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 127-146.
7479	Thin Silicide Development for Fully-Depleted SOI CMOS Technology	Liu, H.I. Burns, J.A. Keast, C.L. Wyatt, P.W.	IEEE Trans. Electron Devices, Vol. 45, No. 5, May 1998, pp. 1099-1104. ADA351825
7481	Electrooptic Phased Array Transmitter	Henion, S.R. Schulz, P.A.	IEEE Photonics Technol. Lett., Vol. 10, No. 3, March 1998, pp. 424-426. ADA340342
7483	Thermal Coefficients of the Optical Path Length and Refractive Index in YAG	Fan, T.Y. Daneu, J.L.	Appl. Opt., Vol. 37, No. 9, 20 March 1998, pp. 1635-1637. ADA351898
7485	Phase Noise of a Resonant-Tunneling Relaxation Oscillator	Verghese, S. Parker, C.D. Brown, E.R.	Appl. Phys. Lett., Vol. 72, No. 20, 18 May 1998, pp. 2550-2552.
7486	Zeeman Spectroscopy of Shallow Donors in GaN	Moore, W.J. Freitas, J.A., Jr. Molnar, R.J.	Phys. Rev. B, Condens. Matter, Vol. 56, No. 19, 15 November 1997, pp. 12,073-12,076.
7495	High-Performance GaInAsSb Thermophotovoltaic Devices with an AlGaAsSb Window	Choi, H-K. Wang, C.A. Turner, G.W. Manfra, M.J. Spears, D.L. Charache, G.W. Danielson, L.R. Depoy, D.M.	Appl. Phys. Lett., Vol. 71, No. 26, 29 December 1997, pp. 3758-3760.

JA No.			
7496	Photolithography at 193 nm	Rothschild, M. Horn, M.W. Keast, C.L. Kunz, R.R. Liberman, V. Palmateer, S.C. Doran, S.P. Forte, A.R. Goodman, R.B. Sedlacek, J.H.C. Uttaro, R.S. Corliss, D. Grenville, A.	Linc. Lab. J., Vol. 10, No. 1, 1997, pp. 19-34. ADA351589
7498	Lithography with 157 nm Lasers	Bloomstein, T.M. Horn, M.W. Rothschild, M. Kunz, R.R. Palmacci, S.T. Goodman, R.B.	J. Vac. Sci. Technol. B, Vol. 15, No. 6, November/December 1997, pp. 2112-2116 (41st Int. Conf. on Electron, Ion, and Photon Beam Technology and Nanofabrication, 27-30 May 1997). ADA339489
7499	High-Definition Vector Imaging	Benitz, G.R.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 147-170.
7500	Asynchronous Phase-Modulated Optical Fiber-Ring Buffer	Jones, D.J. Hall, K.L. Haus, H.A. Ippen, E.P.	Opt. Lett., Vol. 23, No. 3, 1 February 1998, pp. 177-179.
7501	Automated English-Korean Translation for Enhanced Coalition Communications	Weinstein, C.J. Lee, Y-S. Seneff, S. Tummala, D.R. Carlson, B.A. Lynch, J.T. Hwang, J-T. Kukolich, L.C.	Linc. Lab. J., Vol. 10, No. 1, 1997, pp. 35-60. ADA351873

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7504	A 1.3-GHz SOI CMOS Test Chip for Low-Power High-Speed Pulse Processing	Berger, R. Lyons, G.W. Soares, A.	IEEE J. Solid-State Circuits, Vol. 33, No. 8, August 1998, pp. 1259-1261.
7505	Infrared Materials for Thermophotovoltaic Applications	Charache, G.W. Egley, J.L. Depoy, D.M. Danielson, L.R. Freeman, M.J. Dziendziel, R.J. Moynihan, J.F. Baldasaro, P.F. Campbell, B.C. Wang, C.A. Choi, H-K. Turner, G.W. Wojtczuk, S.J. Colter, P. Sharps, P. Timmons, M. Fahey, R.E. Zhang, K.	J. Electron. Mater., Vol. 27, No. 9, September 1998, pp. 1038-1042.
7512	Comparison of a Rate-Equation Model with Experiment for the Resonant Tunneling Diode in the Scattering-Dominated Regime	Mattia, J.P. McWhorter, A.L. Aggarwal, R.J. Rana, F. Brown, E.R. Maki, P.A.	J. Appl. Phys., Vol. 84, No. 2, 15 July 1998, pp. 1140-1148.
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7515	Pattern Transfer for Diffractive and Refractive Microoptics	Stern, M.B.	Microelectron. Eng., Vol. 34, No. 3-4, December 1997, pp. 299-319.

JA No.			
7524	Effects of Internal Loss on Power Efficiency of Mid-Infrared InAs-GaInSb-AlSb Quantum-Well Lasers and Comparison with InAsSb Lasers	Le, H.Q. Lin, C.H. Murray, S.J. Yang, R.Q. Pei, S.S.	IEEE J. Quantum Electron., Vol. 34, No. 6, June 1998, pp. 1016-1030.
7529	OMVPE Growth of GaInAsSb in the 2-2.4 μm Range	Wang, C.A.	J. Cryst. Growth, Vol. 191, No. 4, 1 August 1998, pp. 631-640.
7531	Ultralow-Threshold (50A/cm^2) Strained Single-Quantum-Well GaInAsSb/AlGaAsSb Lasers Emitting at 2.05 μm	Turner, G.W. Choi, H-K. Manfra, M.J.	Appl. Phys. Lett., Vol. 72, No. 8, 23 February 1998, pp. 876-878. ADA351597
7533	Bromine Ion-Beam-Assisted Etching of InP and GaAs	Rossler, J.M. Royter, Y. Mull, D.E. Goodhue, W.D. Fonstad, C.G.	J. Vac. Sci. Technol. B, Vol. 16, No. 3, May/June 1998, pp. 1012-1017.
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7546	GaInAsSb-AlGaAsSb Tapered Lasers Emitting at 2.05 μm with 0.6-W Diffraction-Limited Power	Choi, H-K. Walpole, J.N. Turner, G.W. Connors, M.K. Missaggia, L.J. Manfra, M.J.	IEEE Photonics Technol. Lett., Vol. 10, No. 7, July 1998, pp. 938-940.
7547	Calculated and Measured Transmittance of Metallodielectric Photonic Crystals Incorporating Flat Metal Elements	Kao, A. McIntosh, K.A. McMahon, O.B. Atkins, R.G. Verghese, S.	Appl. Phys. Lett., Vol. 73, No. 2, 13 July 1998, pp. 145-147.

Journal Articles

JA No.

7551	Low-Loss High-Efficiency and High-Power Diode-Pumped Mid-Infrared GaInSb/InAs Quantum Well Lasers	Le, H.Q. Lin, C.H. Pei, S.S.	Appl. Phys. Lett., Vol. 72, No. 26, 29 June 1998, pp. 3434-3436.
7555	Toward Best-Effort Services over WDM Networks with Fair Access and Minimum Bandwidth Guarantee	Kam, A.C. Siu, K-Y. Barry, R.A. Swanson, E.A.	IEEE J. Sel. Areas Commun., Vol. 16, No. 7, September 1998, pp. 1024-1039.
7556	High-Precision Film Thickness Determination Using a Laser-Based Ultrasonic Technique	Banet, M.J. Fuchs, M. Rogers, J.A. Reinold, J.H., Jr. Knecht, J.M. Rothschild, M. Logan, R. Maznev, A.A. Nelson, K.A.	Appl. Phys. Lett., Vol. 73, No. 2, 13 July 1998, pp. 169-171.
7558	1.5-μm Tapered-Gain-Region Lasers with High-CW Output Powers	Donnelly, J.P. Walpole, J.N. Groves, S.H. Bailey, R.J. Missaggia, L.J. Napoleone, A. Reeder, R.E. Cook, C.C.	IEEE Photonics Technol. Lett., Vol. 10, No. 10, October 1998, pp. 1377-1379.
7561	Planar Integration of a Resonant-Tunneling Diode with pHEMT Using a Novel Proton Implantation Technique	Chen, C-L. Mahoney, L.J. Calawa, S.D. Mathews, R.H. Molvar, K.M. Sage, J.P. Maki, P.A. Sollner, T.C.L.G.	IEEE Electron Device Lett., Vol. 19, No. 12, December 1998, pp. 478-480.
7562	100-Gbit/s Bitwise Logic	Hall, K.L. Rauschenbach, K.A.	Opt. Lett., Vol. 23, No. 16, 15 August 1998, pp. 1271-1273.

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7564	Photoluminescence Excitation Spectroscopy of Free-to-Bound Transitions in Undoped GaN Grown by Hydride Vapor Phase Epitaxy	Rhee, S.J. Kim, S. Reuter, E.E. Bishop, S.G. Molnar, R.J.	Appl. Phys. Lett., Vol. 73, No. 18, 2 November 1998, pp. 2636-2638.
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7571	X-Ray Absorption Near Edge Structure in the Quantum Efficiency of X-Ray Charge-Coupled Devices	Prigozhin, G.Y. Woo, J. Gregory, J.A. Loomis, A.H. Bautz, M.W. Ricker, G.R. Kraft, S.	Opt. Eng., Vol. 37, No. 10, October 1998, pp. 2848-2854.
7578	The Development of Superresolution at Lincoln Laboratory	Stiglitz, I.G.	Linc. Lab. J., Vol. 10, No. 2, 1997, pp. 83-85.
7579	Comments on "A Mueller Matrix Formalism for Modeling Polarization Effects in Erbium-Doped Fiber"	Chinn, S.R.	J. Lightwave Technol., Vol. 16, No. 10, October 1998, pp. 1942-1943.
7595	Response of Sample Covariance Based MVDR Beamformer to Imperfect Look and Inhomogeneities	Richmond, C.D.	IEEE Signal Process. Lett., Vol. 5, No. 12, December 1998, pp. 325-327.

Journal Articles

JA No.

7614	Microwave Power Handling in Engineered $YBa_2Cu_3O_7$-Δ Grain Boundaries	Habib, Y.M. Oates, D.E. Dresselhaus, G.F. Dresselhaus, M.S. Vale, L.R. Ono, R.H.	Appl. Phys. Lett., Vol. 73, No. 15, 12 October 1998, pp. 2200-2202.

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11748	The Westford Water Vapor Experiment: Use of GPS to Determine Total Precipitable Water Vapor	Coster, A.J. Niell, A.E. Solheim, F.S. Mendes, V.B. Toor, P.C. Langley, R.B. Ruggles, C.A.	Proc. of the 52nd Annual Mtg. of the Institute of Navigation, Navigational Technology for the 3rd Millennium, 19-21 June 1996, pp. 529-538.
11835	Antimonide-Based Mid-Infrared Quantum-Well Diode Lasers	Turner, G.W. Choi, H-K.	Chapter 8 in *Optoelectronic Properties of Semiconductors and Superlattices,* Vol. 3, Antimonide-Related Strained Layer Heterostructures, Gordon & Breach, 1997, pp. 369-431.
11842	Large-Area Back-Illuminated CCD Imager Development	Burke, B.E. Gregory, J.A. Mountain, R.W. Kosicki, B.B. Savoye, E.D. Daniels, P.J. Dolat, V.S. Lind, T.L. Loomis, A.H. Young, D.J. Luppino, G.A. Tonry, J.L.	Exp. Astron., Vol. 8, No. 1, 1998, pp. 31-40.
11944A	Classifier Performance Using Enhanced Resolution SAR Data	Novak, L.M. Benitz, G.R. Owirka, G.J. Popielarz, J.D.	IEE Int. Radar Conf. (Radar '97), 14-16 October 1997, pp. 634-638.

Meeting Speeches

MS No.			
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11995	III-V Quantum-Well Structures for High-Speed Electronics	Brown, E.R. McIntosh, K.A.	Advances in Research and Development: Heterojunctions for High-Speed and Infrared Applications (Series: Thin Films, Vol. 23), January 1997, pp. 173-216.
12111	RCS Models and Analysis of Metallic Mines	Lee, C.F. Ayasli, S. Carlin, L. Merchant, B.L.	SPIE, Vol. 3079, Detection and Remediation Technologies for Mines and Minelike Targets II, 21-24 April 1997, pp. 581-597.
12159	Some Limits on the Performance of an Analog Optical Link	Cox, C.H. III Ackerman, E.I.	SPIE, Vol. 3463, Photonics and Radio Frequency II, 21-22 July 1998, pp. 2-7.
12212	Electromagnetic Pulse Propagation and Scattering from Terrain: Experimental Observation and Comparison with Theory	Zurk, L.M. Coutts, S.D.	IEEE Antennas and Propagation Society Int. Symp. 1997 Digest, Vol. 4, 13-18 July 1997, pp. 2576-2579.

MS No.			
12234	Photolithography at 0.10 and 0.13 μm Using ArF Excimer Laser Lithography in Combination with Resolution Enhancement Techniques	Chan, M. Kunz, R.R. Doran, S.P. Rothschild, M.	J. Vac. Sci. Technol. B, Vol. 15, No. 6, November/December 1997, pp. 2404-2111 (41st Int. Conf. on Electron, Ion, and Photon Beam Technology and Nanofabrication, 27-30 May 1997). ADA351620
12251	Correction of Near-Field Effects in Phased Array Element Pattern Measurements	Aumann, H.M.	IEEE Antennas and Propagation Society Int. Symp. 1997 Digest, Vol. 1, 13-18 July 1997, pp. 572-575.
12252A	Laser Micromachining of Silicon: A New Technique for Fabricating Terahertz Imaging Arrays	Walker, C.K. Hungerford, A. Narayanan, G Groppi, C. Bloomstein, T.M. Palmacci, S.T. Stern, M.B. Curtin, J.E.	SPIE, Vol. 3357, Advanced Technology MMW, Radio, and Terahertz Telescopes, 26-28 March 1998, pp. 45-52.
12253	Scheduling Algorithms for Message Transmission Over a Satellite Broadcast System	Modiano, E.	IEEE MILCOM '97, Vol. 2, 4 November 1997, pp. 628-634.
12290	Time Delay Steering Architectures for Space-Time Adaptive Processing	Zatman, M.A. Baranoski, E.J.	IEEE Antennas and Propagation Society Int. Symp. 1997 Digest, Vol. 4, 13-18 July 1997, pp. 2426-2429.

Meeting Speeches

MS No.			
12336	Demonstration of a Re-Configurable Wavelength-Routed Network at 1.14 Terabits-per-Second	Hemenway, B.R., Jr. Stevens, M.L. Barry, R.A. Koksal, E. Swanson, E.A.	Conf. on Optical Fiber Communications, 1997 OSA Technical Digest Series, Vol. 6, 16-21 February 1997, pp. 471-474.
12376A	Statistical Performance Analysis of the Adaptive Sidelobe Blanker Detection Algorithm	Richmond, C.D.	Thirty-First Asilomar Conf. on Signals, Systems and Computers, Vol. 1, 2-5 November 1997, pp. 872-876.
12394	Performance Characteristics of an Algorithm Used to Remove Anomalous Propagation from the NEXRAD Data	Isaminger, M.A. Crowe, B.A. Boorman, B.G. Evans, J.E. Boldi, R.A.	28th Conf. on Radar Meteorology, 7-12 September 1997, pp. 317-319.
12402A	Analyst Trainable Fusion Algorithms for Surveillance Applications	Delanoy, R.L. Lacoss, R.T.	SPIE, Vol. 3370, Algorithms for Synthetic Aperture Radar Imagery V, 14-17 April 1998, pp. 143-154.
12417A	Robust Speech Recognition with Time-Varying Filtering, Interruptions, and Noise	Lippmann, R.P. Carlson, B.A.	1997 IEEE Workshop on Automatic Speech Recognition and Understanding Proc., September 1997, pp. 365-372.
12421	Large-Area Micromechanical Flat-Panel Display	Stern, E.	1997 Int. Display Research Conf., 15-19 September 1997, pp. 230-233.

MS No.			
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Meeting Speeches

MS No.			
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MS No.			
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Meeting Speeches

MS No.			
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Meeting Speeches

MS No.			
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MS No.			
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Meeting Speeches

MS No.			
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MS No.			
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Meeting Speeches

MS No.

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MS No.			
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Meeting Speeches

MS No.			
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MS No.			
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AUTHOR INDEX

Ackerman, E.I., JA-7425, MS-12159
Adams, L.E., JA-7236
Aggarwal, R.J., JA-7512
Aguilar, J.M., MS-12975
Atkins, R.G., JA-7547, MS-13056
Aumann, H.M., MS-12251
Ayasli, S., MS-12111, MS-12540
Bailey, R.J., JA-7360, JA-7558, MS-12562
Baldasaro, P.F., JA-7505
Banet, M.J., JA-7556
Baranoski, E.J., MS-12290
Barclay, H.T., MS-12847, MS-12849
Barry, R.A., JA-7236, JA-7555, MS-12336, MS-12428, MS-12644, MS-12668, MS-12724
Bates, A.K., MS-12898
Baum, J.E., MS-12781
Bautz, M.W., JA-7571, MS-12637
Baxter, R.A., MS-12437, MS-12979
Beavers, W.I., TR-1045
Belk, N., JA-7446
Benitz, G.R., JA-7499, MS-11944A, MS-12663
Berger, R., JA-7504
Bernstein, S.L., TR-1039
Berthiaume, G.D., MS-12794
Betts, G.E., JA-7425
Bicknell, W.E., MS-12712A, MS-12795
Billingsley, J.B., JA-7460
Billman, K., MS-12849
Bishop, S.G., JA-7564
Blakeney, A., JA-7570
Bloomstein, T.M., JA-7498, MS-12252A
Boldi, R.A., MS-12394
Bond, R.A., MS-12466
Boorman, B.G., MS-12394
Borsari, G.K., MS-12520
Brower, W.S., JA-7452, MS-12560B
Brown, E.R., JA-7485, JA-7512, MS-11995
Burke, B.E., MS-11842, MS-12637
Burke, H.K., TR-1049
Burns, J.A., JA-7479
Burt, E.C. II, JA-7418
Calawa, D.R., MS-12577
Calawa, S.D., JA-7561, MS-13075
Campbell, B.C., JA-7505
Candell, L.M., MS-12794, MS-12795, MS-12817
Cann, S.G., MS-12664
Carlin, L., MS-12111
Carlisle, G.W., MS-12794
Carlson, B.A., JA-7501, MS-12417A
Chan, A.H., MS-12427
Chan, M., MS-12234
Chan, V.W.S., JA-7236
Chang, E.I., JA-7436
Charache, G.W., JA-7495, JA-7505, MS-12488
Chen, C-L., JA-7561
Chinn, S.R., JA-7514, JA-7579, MS-12665
Choi, H-K., JA-7495, JA-7505, JA-7531, JA-7546, MS-11835, MS-11947A, MS-12488, MS-12846
Coakley, M.M., MS-12794
Colter, P., JA-7505
Connors, M.K., JA-7546, MS-11947A
Cook, C.C., JA-7558, MS-12562
Corliss, D., JA-7496
Coster, A.J., MS-11748
Coutts, S.D., TR-1046, MS-12212, MS-12804
Cox, C.H. III, JA-7425, MS-12159
Crowe, B.A., MS-12394
Cuomo, K.M., JA-7474
Curtin, J.E., MS-12252A, MS-12538, MS-12664
Cusumano, S., MS-12849
Daly, J.M., MS-12466
Daneu, J.L., JA-7483
Daniels, P.J., MS-11842
Danielson, L.R., JA-7495, JA-7505
Deady, W.R., JA-7570
Dean, K., JA-7570
Delanoy, R.L., MS-12402A
DeLuca, C.A., MS-12466
Depoy, D.M., JA-7495, JA-7505
Digenis, C.J., MS-12712A
Dinatale, W.F., MS-13075

Author Index

Doerr, C.R., JA-7236
Dolat, V.S., MS-11842
Donnelly, J.P., JA-7360, JA-7558, MS-12562
Doran, S.P., JA-7496, MS-12234, MS-12664
Dresselhaus, G.F., JA-7446, JA-7614
Dresselhaus, M.S., JA-7446, JA-7614
Duerr, E.K., MS-13075
Duffy, S.M., MS-12791
Dziendziel, R.J., JA-7505
Efremow, N.E., Jr., JA-7426, JA-7469, JA-7469A
Egley, J.L., JA-7505
Eriksen, L.M., MS-12664
Evans, J.E., MS-12394
Fahey, R.E., JA-7505
Fan, T.Y., JA-7483
Fay, D.A., MS-12975
Feld, D.A., JA-7446
Fenn, A.J., JA-7468A
Finn, S.G., JA-7236, MS-12428, MS-12668
Fonstad, C.G., JA-7533
Forsythe, K.W., JA-7443
Forte, A.R., JA-7496, MS-12664
Freeman, M.J., JA-7505
Freitas, J.A., Jr., JA-7486
Fritze, M., JA-7465
Fuchs, M., JA-7556
Gabel, R.A., MS-12931
Gabor, A., JA-7570
Gaposchkin, E.M., TR-1045
Gazarik, M.J., MS-12817
Geddes, R.L., MS-12449B
Geis, M.W., JA-7426, JA-7469, JA-7469A, MS-12538
Gendreau, K., MS-12637
Goldstein, J.S., MS-12889
Goodhue, W.D., JA-7533
Goodman, R.B., JA-7496, JA-7498
Götz, W., MS-11633
Greer, J.A., JA-7469, JA-7469A
Gregory, J.A., JA-7571, MS-11842
Grenville, A., JA-7496, MS-12495, MS-12898
Groppi, C., MS-12252A
Groves, S.H., JA-7360, JA-7558, MS-12562, MS-12577
Habib, Y.M., JA-7614
Hall, K.L., JA-7236, JA-7461, JA-7500, JA-7562, MS-12427, MS-12725
Haner, M., JA-7236
Harman, T.C., MS-12577
Hatke, G.F., JA-7478, MS-12677
Haus, H.A., JA-7236, JA-7500
Hawkins, J., MS-12794
Haywiser, E.J., MS-12540
Hearn, D.R., MS-12832, MS-12834, MS-12835
Heisey, C.W., MS-12466
Helkey, R., MS-12692
Hemenway, B.R., Jr., MS-12336
Henion, S.R., JA-7481
Hetling, K.J., MS-13130
Heymann, R., MS-12794
Higgs, C., MS-12847, MS-12848, MS-12849
Holder, E.J., JA-7536, MS-12674
Horn, M.W., JA-7496, JA-7498
Horowitz, L.L., JA-7442
Hungerford, A., MS-12252A
Hwang, J-T., JA-7501
Ippen, E.P., JA-7236, JA-7500
Ireland, D.B., MS-12975
Isaminger, M.A., MS-12394
Jao, J.K., MS-12540
Jarmalowicz, J.J., JA-7570
Jogai, B., JA-7455
Johnson, N.M., MS-11633
Jones, D.J., JA-7500
Jordan, M.P., TR-1049
Kalish, R., JA-7469, JA-7469A
Kam, A.C., JA-7555
Kansky, J.E., TR-1045, MS-12847
Kao, A., JA-7547, MS-13056
Kassay, D.A., MS-12943
Keast, C.L., JA-7479, JA-7496
Kerekes, J.P., MS-12726, MS-12793
Kim, S., JA-7564
King, G.A., JA-7468A
Kintzer, E.S., JA-7236

Knecht, J.M., JA-7556
Kocher, D.G., MS-12795
Kogon, S.M., JA-7536, MS-12674
Koksal, E., MS-12336
Kosicki, B.B., MS-11842
Kraft, S., JA-7571
Krohn, K.E., JA-7426, JA-7469, JA-7469A
Kukolich, L.C., JA-7501
Kunz, R.R., JA-7496, JA-7498, JA-7570, MS-12234, MS-12495, MS-12664, MS-12898
Lacoss, R.T., MS-12402A, MS-12524
Lambour, R.L., TR-1045
Langley, R.B., MS-11748
Le, H.Q., MS-12735, JA-7524, JA-7551, MS-12846
Lee, C.F., MS-12111, MS-12540
Lee, Y-S., JA-7501
Lencioni, D.E., MS-12712A, MS-12832, MS-12835
Leonard, E.T., MS-12817
Liberman, V., JA-7496, MS-12495, MS-12898
Lin, C.H., JA-7524, JA-7551, MS-12846
Lind, T.L., MS-11842
Lippmann, R.P., JA-7436, MS-12417A
Liu, H.I., JA-7479
Logan, R., JA-7556
Look, D.C., JA-7455
Loomis, A.H., JA-7571, MS-11842
Luppino, G.A., MS-11842
Lynch, J.T., JA-7501
Lyons, G.W., JA-7504
Lyszczarz, T.M., JA-7426, JA-7469, JA-7469A, MS-12664, MS-12696
MacDonald, M.E., MS-12794
Mahoney, L.J., JA-7561
Maki, P.A., JA-7512, JA-7561
Manfra, M.J., JA-7495, JA-7531, JA-7546, MS-11947A
Marquis, D.V., MS-12428
Martinez, D.R., MS-13150
Mathews, R.H., JA-7561
Mattia, J.P., JA-7512
Mayhan, J.T., JA-7474
Maznev, A.A., JA-7556
McIntosh, K.A., JA-7547, MS-11995, MS-13056, MS-13075
McMahon, O.B., JA-7547, MS-13056
McWhorter, A.L., JA-7512
Médard, M., MS-12427, MS-12428, MS-12528, MS-12665, MS-12668, MS-12724
Melvin, W.L., MS-12889
Mendenhall, J.A., MS-12832, MS-12835
Mendes, V.B., MS-11748
Merchant, B.L., MS-12111
Missaggia, L.J., JA-7360, JA-7546, JA-7558, MS-12562
Modiano, E., MS-12253, MS-12594A, MS-12644, MS-13218
Molnar, R.J., JA-7455, JA-7486, JA-7564, MS-11633
Molvar, K.M., JA-7561, MS-13075
Moore, T.G., JA-7418
Moore, W.J., JA-7486
Moores, J.D., JA-7236, MS-12427
Mountain, R.W., MS-11842
Moynihan, J.F., JA-7505
Mull, D.E., JA-7533
Murphy, D.V., MS-12847
Murray, S.J., JA-7524
Napoleone, A., JA-7360, JA-7558, MS-12562
Narayanan, G., MS-12252A
Nelson, C.M., MS-12664, MS-12696
Nelson, K.A., JA-7556
Niell, A.E., MS-11748
Novak, L.M., JA-7452, MS-11944A, MS-12560B, MS-12723
O'Connor, D.A., TR-1044
O'Leary, G.C., MS-12640
Oakley, D.C., MS-12488
Oates, D.E., JA-7446, JA-7614
Ochoa, J.R., MS-12735, MS-12846
Ono, R.H., JA-7614
Owirka, G.J., JA-7452, MS-11944A, MS-12560B

Author Index

Palmacci, S.T., JA-7498, MS-12252A
Palmateer, S.C., JA-7496, MS-12664, MS-12696
Parikh, S.A., MS-12427
Parker, A.C., MS-12832, MS-12835
Parker, C.D., JA-7485
Parks, T.M., MS-12943
Peduzzi, D.C., TR-1049
Pei, S.S., JA-7524, JA-7551, MS-12846
Pensa, A.F., MS-13011
Piou, J.E., JA-7474
Popielarz, J.D., MS-11944A
Prigozhin, G.Y., JA-7571, MS-12637
Primmerman, C.A., MS-12847
Prutzer, S., MS-12817
Quatieri, T.F., MS-12437, MS-12640, MS-12979
Rabideau, D.J., MS-12564, MS-12687
Racamato, J.P., Jr., MS-12975
Rana, F., JA-7512
Rauschenbach, K.A., JA-7236, JA-7461, JA-7562, MS-12427
Reed, I.S., MS-12889
Reeder, R.E., JA-7558, MS-12562
Reinold, J.H., Jr., JA-7556
Reuter, E.E., JA-7564
Reynolds, D.A., MS-12640
Reynolds, D.C., JA-7455
Rhee, S.J., JA-7564
Rhodes, R.R., MS-13130
Rich, G., JA-7570
Richmond, C.D., JA-7595, MS-12376A, MS-13129
Ricker, G.R., JA-7571, MS-12637
Rink, K.A., TR-1044
Robinson, B.S., MS-12725
Rogers, J.A., JA-7556
Romano, L.T., MS-11633
Ross, W.D., MS-12975
Rossler, J.M., JA-7533
Rothschild, M., JA-7496, JA-7498, JA-7556, MS-12234, MS-12495, MS-12813, MS-12898
Roussell, H.V., MS-12692
Royter, Y., JA-7533
Ruggles, C.A., MS-11748
Ryan-Howard, D.P., MS-12794, MS-12795
Saengudomlert, P., MS-12665
Sage, J.P., JA-7561
Sathiaseelan, V., JA-7468A
Savoye, E.D., MS-11842
Schein, B.E., TR-1039
Schulz, P.A., JA-7481
Sedlacek, J.H.C., JA-7496, MS-12495, MS-12898
Seneff, S., JA-7501
Sharps, P., JA-7505
Shields, M.W., MS-12793
Shnidman, D.A., JA-7427
Siu, K-Y., JA-7555
Snow, J.W., TR-1049
Soares, A., JA-7504
Solheim, F.S., MS-11748
Sollner, T.C.L.G., JA-7561
Solman, F.J., MS-12793
Song, W.S., MS-12535
Spears, D.L., JA-7495, MS-12577
Sridharan, R., TR-1045, MS-13011
Staelin, D.H., MS-12793
Stark, D., JA-7570
Stauffer, P.R., JA-7468A
Steinhäusler, T., JA-7570
Stern, E., MS-12421
Stern, M.B., JA-7426, JA-7465, JA-7515, MS-12252A, MS-12538, MS-12664
Stevens, M.L., MS-12336
Stiglitz, I.G., JA-7578
Swanson, E.A., JA-7236, JA-7555, MS-12336, MS-12644
Tabat, M.D., JA-7469, JA-7469A
Teitelbaum, K., MS-12895
Timmons, M., JA-7505
Tonry, J.L., MS-11842
Toor, P.C., MS-11748
Tummala, D.R., JA-7501

Turner, G.W., JA-7495, JA-7505, JA-7531, JA-7546, MS-11835, MS-11947A, MS-12735, MS-12846
Twichell, J.C., JA-7426, JA-7469, JA-7469A
Upham, C.A., TR-1049
Uttaro, R.S., JA-7496, MS-12495, MS-12898
Vale, L.R., JA-7614
Van Peski, C., MS-12898
Verbout, S.M., MS-12723
Verghese, S., JA-7485, JA-7547, MS-13056, MS-13075
Verly, J.G., MS-12524
Wack, E.C., MS-12781, MS-12794
Walker, C.K., MS-12252A
Walpole, J.N., JA-7360, JA-7546, JA-7558, MS-12562
Walsh, M.P., MS-12577
Wang, C.A., JA-7495, JA-7505, JA-7529, MS-12488
Ward, J., MS-12677, MS-12926
Waxman, A.M., MS-12975
Weaver, A.L., JA-7452, MS-12723
Weinstein, C.J., JA-7501, MS-12943
Weitz, D.M., MS-12794, MS-12795
White, D., JA-7570
Williams, D.B., JA-7536, MS-12674
Wilson, C.F., MS-12794
Wojtczuk, S.J., JA-7505
Wong, W.S., JA-7236
Woo, J., JA-7571
Woodhouse, J.D., JA-7360
Wu, P.H., MS-12792
Wyatt, P.W., JA-7465, JA-7479
Yang, R.Q., JA-7524, MS-12846
Young, D.J., MS-11842
Zatman, M.A., JA-7463, MS-12290, MS-12671, MS-12799, MS-12877
Zhang, K., JA-7505
Zuerndorfer, B.W., JA-7418
Zulch, P.A., MS-12889
Zurk, L.M., MS-12212, MS-12449B

SUBJECT INDEX

ABSORPTION
JA-7571

ACCESS NETWORKS
MS-13218

ADAPTIVE ARRAYS
JA-7578, MS-12799, MS-13150

ADAPTIVE BEAMFORMING
JA-7443

ADAPTIVE ESTIMATION
MS-12376A

ADAPTIVE FILTERS
MS-12376A, MS-12564

ADAPTIVE NULLING
MS-13129

ADAPTIVE OPTICS
MS-12847

ADAPTIVE RADAR
MS-12674

ADAPTIVE SIGNAL PROCESSING
JA-7536, MS-12564, MS-12889, MS-12926

AIRBORNE EARLY WARNING RADAR
MS-12520

AIRBORNE LASER RADAR
MS-12847, MS-12848, MS-12849

AIRBORNE RADAR
MS-12212, MS-12290, MS-12535, MS-12687, MS-12895, MS-12926

AIRBORNE SENSORS
MS-12540

AIRBORNE SURVEILLANCE
JA-7442, MS-12677

ALGORITHMS
TR-1044, JA-7418, JA-7463, MS-12253, MS-12394, MS-12466, MS-12520, MS-12640, MS-12792

ALL OPTICAL NETWORKS
JA-7236, JA-7555, MS-12427, MS-12428, MS-12665

ALL OPTICAL SWITCHING
JA-7562, MS-12725

ALUMINUM GALLIUM ARSENIDE ANTIMONIDE
JA-7546

AM-FM SIGNALS
MS-12979

ANALOG LINKS
JA-7425

ANALOG TO DIGITAL CONVERTERS
MS-12792

ANGLE OF ARRIVAL
MS-12877

ANTENNA ARRAYS
JA-7443, MS-12791

ANTENNA DESIGN
MS-12791

ANTENNA THEORY
MS-13056

ANTIMONIDES
MS-11835

Subject Index

ARGON LASER
JA-7455

ARRAY SIGNAL PROCESSING
JA-7463

ATMOSPHERIC COMPENSATION
MS-12726, MS-12847, MS-12848

ATMOSPHERIC MEASUREMENTS
TR-1049

ATMOSPHERIC SOUNDING
MS-12817

AUTOMATIC PROTECTION SWITCHING
MS-12668

AUTOMATIC TARGET RECOGNITION
JA-7452, MS-11944A, MS-12402A, MS-12524, MS-12560B, MS-12723

BALLISTIC MISSILE DEFENSE
MS-12848, MS-12849

BANDWIDTH EXPANSION
MS-12528

BATTLEFIELD AWARENESS AND DATA DISSEMINATION
TR-1039

BATTLEFIELD COMMUNICATIONS
JA-7442

BEAMFORMER
JA-7595

BEAMFORMING
MS-12799

BINARY INTEGRATION
JA-7427

BROADBAND
MS-12877

BROADBAND NETWORKS
MS-12336, MS-13218

BROMINE
JA-7533

BUFFERS
JA-7500

CALIBRATION
JA-7595, MS-12781, MS-12832, MS-12835

CANCER
JA-7468A

CATHODES
JA-7426, JA-7469

CHARGE COUPLED DEVICES
JA-7571, MS-11842, MS-12538, MS-12637, MS-12794, MS-12975

CHEMICAL SENSORS
MS-12538

CHEMICAL VAPOR DEPOSITION
MS-12562

CIRCUIT SWITCHING
JA-7555

CIRCULAR POLARIZATION
JA-7579

CLASSIFIER PERFORMANCE
MS-12560B

CLUTTER
JA-7460, MS-12687, MS-12723, MS-12926, MS-12931

CMOS
JA-7479, JA-7504

CO-CHANNEL INTERFERENCE
JA-7578

COMMUNICATION NETWORKS
MS-13218

COMMUNICATIONS
JA-7501, MS-12724

COMPRESSIVE RECEIVERS
JA-7504

COMPUTATION
JA-7427

COMPUTER ARCHITECTURE
MS-13150

CONSTANT FALSE ALARM RATE
MS-12889

CONTACT RESISTANCE
JA-7479

CONTINUOUS PHASE MODULATION
MS-13130

CONTINUOUS WAVE LASERS
JA-7546, MS-13075

COUNTERMEASURES
MS-12428

COVARIANCE
JA-7595

CRAMER-RAO BOUND
JA-7463, MS-12877

CRYPTOGRAPHY
MS-12427, MS-12943

CRYSTAL GROWTH
JA-7529

DATA ANALYSIS
TR-1049

DATA FUSION
MS-12402A

DECODERS
TR-1039

DEMODULATION
MS-12159, MS-12792

DETECTION
JA-7427, MS-12290, MS-12665

DEVICES
JA-7485

DIAMOND GRIT
JA-7426

DIAMOND SURFACE EMISSION CATHODES
JA-7469, JA-7469A

DIELECTRIC LAYERS
JA-7547

DIFFRACTIVE OPTICS
JA-7515

DIGITAL RADAR RECEIVERS
MS-12535

DIGITAL SIGNAL PROCESSING
JA-7504, MS-13150

DIODE LASERS
JA-7360, MS-11835

DIODE PUMPED LASERS
JA-7551

Subject Index

DIODE PUMPING
MS-12735

DIRECTION FINDING
JA-7443, MS-12671

DOPPLER EFFECT
JA-7460

DOPPLER RADAR
TR-1049

DOPPLER WARPING
MS-12520

EARLY WARNING RADAR
MS-12535

EDGE DETECTION
MS-12251, MS-12664

EDGE ROUGHNESS
MS-12696

EIGENVALUES
MS-13129

ELECTRIC CURRENTS
JA-7426

ELECTROMAGNETIC PROPAGATION
MS-12212

ELECTROMAGNETIC SCATTERING
MS-12212, MS-12449B

ELECTRON EMISSION
JA-7469, JA-7469A

ELECTRONIC MESSAGING
MS-12253

EMISSION WAVELENGTH
JA-7531

EMITTER LOCATION SYSTEM
TR-1046

EMITTERS
JA-7442

EPITAXIAL LAYERS
MS-12488

EPITAXY
JA-7546

ERBIUM
JA-7514

ERBIUM DOPED FIBER AMPLIFIER
JA-7579

ERROR ANALYSIS
MS-12726

ERROR CONTROL CODING
TR-1039

ESTIMATION THEORY
TR-1046

EXCIMER LASER
MS-12495

EXCIMER LASER LITHOGRAPHY
MS-12234

EXCITONS
JA-7455

FADING
MS-12528

FALSE ALARM
JA-7460, MS-12376A

FIBER LASERS
JA-7461

FIELD EFFECT TRANSISTORS
JA-7561

FIELD EFFECTS
MS-12251

FIGURE OF MERIT
MS-12577

FILTERS
MS-12417A

FINITE DIFFERENCE TIME DOMAIN
MS-13056

FINITE IMPULSE RESPONSE
TR-1046

FLAT PANEL DISPLAYS
MS-12421

FOURIER TRANSFORM
MS-12817

FOURIER TRANSFORM INFRARED
MS-12795

FRONT END PROCESSOR
MS-12792

FUNCTIONAL TEMPLATE CORRELATION
MS-12524

GAIN FIGURE
JA-7425

GALLIUM ANTIMONIDE
JA-7546, MS-12846

GALLIUM ARSENIDE
JA-7533

GALLIUM INDIUM ARSENIDE ANTIMONIDE
JA-7495, JA-7546, MS-12488

GALLIUM NITRIDE
JA-7455, JA-7486, MS-11633

GATE ARRAYS
JA-7426

GAUSSIAN PROCESS
MS-13130

GEOSYNCHRONOUS SATELLITES
MS-12793

GLOBAL BROADCAST SERVICE
TR-1039

GLOBAL POSITIONING SYSTEM
MS-11748

GOES IMAGER
MS-12781, MS-12794

GOES SOUNDER
MS-12795

GROUND CLUTTER
MS-12394, MS-12677

GROUND PENETRATION
MS-12111, MS-12540

HELIUM CADMIUM LASER
JA-7455

HETERODYNE DETECTION
MS-11995

HETERODYNE RECEIVER
MS-12252A

Subject Index

HIDDEN MARKOV MODEL
JA-7436, MS-12417A

HIGH DATA RATE COMMUNICATIONS
MS-12791

HIGH DEFINITION IMAGING
MS-11944A

HIGH DEFINITION VECTOR IMAGING
MS-12663

HIGH POWER
MS-12846

HIGH RESISTIVITY
JA-7561, MS-12637

HOUGH TRANSFORM
MS-12524

HYDRIDE VAPOR PHASE EPITAXY
JA-7564, MS-11633

HYPERTHERMIA
JA-7468A

IMAGE PROCESSING
MS-11944A, MS-12402A, MS-12696

IMAGE RECONSTRUCTION
JA-7499

IMAGE RESOLUTION
JA-7452, MS-12560B

IMAGERY
JA-7418

IMAGING ARRAYS
MS-12252A

IMAGING SPECTROMETERS
MS-12637, MS-12712A, MS-12726

IMPEDANCE MATCHING
JA-7425

IMPURITY ELECTRON STATES
JA-7486

INDIUM GALLIUM ARSENIDE
JA-7505

INFRARED DETECTORS
MS-11995

INFRARED IMAGERY
MS-12975

INFRARED LASERS
MS-12846

INFRARED SPECTROSCOPY
JA-7486

INFRARED SYSTEMS
MS-12793

INTEGRATED CIRCUIT FABRICATION
JA-7556

INTEGRATED CIRCUITS
MS-12538

INTERFERENCE
JA-7442, MS-12290, MS-12564,
MS-12674, MS-12677, MS-12931

INTERFEROMETRY
JA-7562, MS-12692, MS-12725,
MS-12795

ION BEAM ETCHING
JA-7533

JAMMERS
MS-12674, MS-12804, MS-12931

JAMMING
JA-7536, MS-12687, MS-12926

L-BAND RADAR
JA-7460

LADAR
MS-12524

LASER INDUCED DAMAGE
MS-12898

LASER MATERIALS PROCESSING
MS-12562

LASERS
JA-7465, JA-7498

LATTICE MATCHED
MS-12488

LINEAR ANTENNA ARRAYS
MS-12520

LITHOGRAPHY
JA-7498

LOCAL AREA NETWORKS
MS-12594A

MACHINE TRANSLATION
JA-7501

MAINBEAM JAMMER
JA-7536

MASSIVELY PARALLEL PROCESSING
MS-12895

MAXIMUM LIKELIHOOD
TR-1046, MS-12804

METAL DIELECTRICS
JA-7547, MS-13056

METEOROLOGICAL CONDITIONS
MS-11748

METEOROLOGICAL SATELLITES
MS-12794

METROLOGY
MS-12696

MICROELECTRONIC DEVICES
JA-7496

MICROELECTRONICS
MS-12813

MICROLENS ARRAYS
JA-7465

MICROMACHINING
MS-12252A

MICROMECHANICS
MS-12421

MICROOPTICS
JA-7515

MICROSTRIP ANTENNAS
JA-7481

MICROWAVE DEVICES
MS-12793

MICROWAVE FREQUENCY
JA-7614

MICROWAVE PHASE SHIFTERS
JA-7481

MICROWAVE SURFACE IMPEDANCE
JA-7446

MICROWAVES
JA-7425

Subject Index

MIDINFRARED LASERS
JA-7524, JA-7546, MS-11947A, MS-12735

MINE DETECTION
MS-12111

MINIMUM SHIFT KEYED
MS-13130

MODELING
JA-7514

MODULATORS
MS-12692

MOLECULAR BEAM EPITAXY
JA-7531, JA-7546, MS-11835, MS-11947A, MS-12577

MONOLITHIC MICROWAVE INTEGRATED CIRCUITS
MS-12791

MOVING TARGET INDICATORS
JA-7460

MULTICASTING
MS-12594A

MULTIPATH
TR-1046

MULTIPATH CHANNELS
MS-12564

MULTIPATH PROCESSING
MS-12804

MULTIPLE QUANTUM WELLS
JA-7360, MS-11995, MS-12577

MULTIPLEXING
MS-13218

MULTISPECTRAL IMAGING
MS-12712A, MS-12975

NANOTECHNOLOGY
MS-12538

NARROW GAP SEMICONDUCTOR LASERS
JA-7524

NARROWBAND
MS-12877

NEODYMIUM:YTTRIUM ALUMINUM GARNET LASERS
MS-12692

NETWORK SECURITY
MS-12943

NEURAL NETWORKS
JA-7436, MS-12979

NIGHT VISION
MS-12975

NOISE
JA-7425, MS-12159, MS-12437, MS-12692

NONLINEARITY
MS-12159

NULLING
MS-12674

OPTICAL AMPLIFIERS
MS-12725

OPTICAL COMMUNICATIONS
MS-12427, MS-12644

OPTICAL FIBER COMMUNICATIONS
MS-12159

OPTICAL FIBER NETWORKS
JA-7514, MS-12668, MS-13218

OPTICAL FIBERS
JA-7500

OPTICAL IMAGING
TR-1045

OPTICAL INTERCONNECTIONS
JA-7481

OPTICAL LINKS
JA-7425

OPTICAL MATERIALS
JA-7498

OPTICAL MODULATION
MS-12159

OPTICAL NETWORKS
MS-12336

OPTICAL PATH LENGTH
JA-7483

OPTICAL PUMPING
JA-7524, MS-12735

OPTICAL SIGNALS
JA-7579

OPTICAL STORAGE
JA-7461

OPTICAL SWITCHES
JA-7562

OPTICAL TRANSFER FUNCTION
MS-12781

OPTOELECTRONIC DEVICES
JA-7481, JA-7529

ORGANOMETALLIC VAPOR PHASE EPITAXY
JA-7360, JA-7495, JA-7529, MS-12488

ORTHOGONAL SIGNALING
MS-12889

OSCILLATORS
JA-7485

PACKET SWITCHING
JA-7500, MS-12943

PATTERN TRANSFER
JA-7515

PELLICLES
MS-12495, MS-12898

PERFORMANCE
MS-12834

PHASE MODULATION
JA-7500

PHASE NOISE
JA-7485

PHASED ARRAYS
JA-7468A, JA-7481, MS-12251

PHOTOCONDUCTORS
MS-13075

PHOTOLITHOGRAPHY
JA-7496, MS-12234, MS-12813

PHOTOLUMINESCENCE
JA-7455

PHOTONIC CRYSTALS
JA-7547, MS-13056

Subject Index

PHOTONICS
JA-7425

PLANAR ARRAYS
JA-7478

PLASMA ETCHING
MS-12664

POLYMERS
JA-7570

PRECIPITATION
MS-11748, MS-12394

PROPAGATION
MS-12394

PROTOCOLS
MS-12943

PSYCHOACOUSTICS
MS-12979

PULSE CIRCUITS
JA-7504

PULSE DOPPLER RADAR
MS-12889

PULSE MODULATION
MS-13130

QUANTUM EFFICIENCY
JA-7571

QUANTUM WELL DIODE LASERS
JA-7531, MS-11947A

QUANTUM WELL LASERS
JA-7524, JA-7546, JA-7551, JA-7558

QUANTUM WELLS
JA-7546, MS-11835, MS-11995

RADAR CROSS SECTIONS
MS-12111

RADAR DATA EXPLOITATION
JA-7474

RADAR IMAGING
JA-7578

RADAR SIGNAL PROCESSING
MS-12466

RADAR SIGNATURE
TR-1045, JA-7474

RADIOMETRY
JA-7478, MS-12781

RADIOSONDE
MS-11748

RANGE IMAGERY
MS-12524

REAL TIME PROCESSING
MS-12975

REFLECTED SIGNAL
MS-12674

REFRACTIVE INDEX
JA-7483

REFRACTIVE MICROLENSES
JA-7465

REFRACTIVE OPTICS
JA-7515

RELAXATION OSCILLATORS
JA-7485

REMOTE SENSING
TR-1045, MS-12726, MS-12817, MS-12832, MS-12835

RESIDENT SPACE OBJECT
MS-13011

RESISTS
JA-7498, JA-7570, MS-12664

RESOLUTION
JA-7418

RESONANT TUNNELING DIODES
JA-7485, JA-7512, JA-7561

SATELLITE COMMUNICATIONS
MS-12253

SCATTERING
JA-7512

SCHEDULING
MS-12594A

SECURITY OF DATA
MS-12428, MS-12665

SEMICONDUCTOR DEVICE FABRICATION
JA-7558

SEMICONDUCTOR LASERS
JA-7546, JA-7551, JA-7558, MS-12846

SEMICONDUCTOR QUANTUM WELLS
MS-12562

SEMICONDUCTORS
JA-7469A, JA-7505, MS-12735

SENSOR ARRAYS
MS-12663, MS-12671, MS-12687

SENSOR FUSION
MS-12975

SENSORS
TR-1044

SHIFT REGISTERS
MS-12427

SIDELOBE ANTENNAS
MS-12799

SIGNAL PROCESSING
MS-12535, MS-12817, MS-12895

SILICON
MS-12252A, MS-12538

SILICON ON INSULATOR
JA-7479, JA-7504

SILICON SUBSTRATES
JA-7556

SOFT X-RAY ASTRONOMY
MS-11842

SOIL
MS-12111

SOLID STATE
JA-7483

SPACE DEBRIS
TR-1045, MS-13011

SPACE SURVEILLANCE
MS-11842, MS-13011

SPACE TIME ADAPTIVE PROCESSING
MS-12290, MS-12466, MS-12520,
MS-12677

SPECTRAL DISTRIBUTION
MS-12637

SPECTRAL MAGNITUDE
MS-12640

SPECTRAL RESOLUTION
MS-12834

Subject Index

SPECTROMETERS
MS-12817, MS-12832, MS-12834, MS-12835

SPECTROSCOPY
JA-7564

SPEECH CORPUS
JA-7436

SPEECH RECOGNITION
MS-12417A, MS-12640

STOPBANDS
JA-7547

STRIPLINE RESONATOR
JA-7446

SUBSPACE
MS-12671

SUBSTRATES
MS-12488

SUPERRESOLUTION
JA-7452, JA-7463, JA-7474, JA-7478, JA-7578, MS-11944A, MS-12663

SURFACE EMITTING LASERS
JA-7533

SURFACE IMAGING
MS-12664

SURFACE IMPEDANCE
JA-7614

SURFACE REFLECTANCE
MS-12726

SURVEILLANCE RADAR
JA-7536

SWITCHING NETWORKS
MS-12668

SYNTHETIC APERTURE RADAR
JA-7452, JA-7499, MS-12111, MS-12402A, MS-12540, MS-12560B, MS-12663, MS-12723

TAPERED LASERS
JA-7546, MS-12562

TARGET DETECTION
JA-7427, MS-12376A, MS-12540, MS-12926

TARGET DISCRIMINATION
MS-12723

TARGET RECOGNITION
JA-7499, MS-12663

TARGET TRACKING
TR-1044

TARGETING
JA-7474

TELEPHONE SETS
MS-12640

TELESCOPES
MS-12712A

TERAHERTZ SPECTROSCOPY
MS-13075

TERRAIN
MS-12449B, MS-12931

THERMOELECTRICS
MS-12577

THERMOPHOTOVOLTAICS
JA-7495, JA-7505

THICK FILMS
MS-11633

THICKNESS MEASUREMENT
JA-7556

THIN FILMS
JA-7446, JA-7614

TIME DIVISION MULTIPLEXING
JA-7236, JA-7461, JA-7562

TRACKING
MS-12848, MS-12849

TRANSDUCTORS
MS-12979

TRANSIENT RESPONSE
JA-7514

TRANSLATION SYSTEMS
JA-7501

TRANSMISSION LINES
MS-13075

TRANSMISSION NETWORKS
MS-12943

TREE DATA STRUCTURES
MS-12895

TUNNELING
JA-7469

TURBULENCE
TR-1049

ULTRAWIDEBAND
JA-7474

UNEXPLODED ORDINANCE
MS-12111

VECTOR QUANTIZATION
JA-7499

VERY HIGH FREQUENCY
TR-1049

VIRTUAL ARRAYS
MS-12251

VULNERABILITIES
MS-12428

WATER VAPOR
MS-11748

WAVEFORMS
JA-7443, MS-13130

WAVEGUIDES
MS-12252A

WAVELENGTH CONVERSION
MS-12724

WAVELENGTH DIVISION MULTIPLEXING
JA-7236, JA-7555, MS-12336,
MS-12427, MS-12594A, MS-12644

WEATHER SENSING
MS-12793

WIDEBAND GAP-SEMICONDUCTORS
JA-7486

WIDEBAND NULLING
MS-12799

WIDEBAND OPTICAL NETWORKS
MS-12724

WIDEBAND RADAR
JA-7418

Subject Index

WIDEBAND SIGNALS
MS-12437

WIENER FILTERING
MS-12437

WORD SPOTTING
JA-7436

X-RAY SPECTROSCOPY
MS-12637

X-RAYS
JA-7571

YTTRIUM ALUMINUM GARNET
JA-7483

193-NM LITHOGRAPHY
JA-7570, MS-12495, MS-12898

193-NM PHOTOLITHOGRAPHY
JA-7496

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